Drosophila neuroblast asymmetric cell division: recent advances and implications for stem cell biology.

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Public Summary:

Scientific Abstract:
Asymmetric cell division is an evolutionarily conserved mechanism widely used to generate cellular diversity during development. Drosophila neuroblasts have been a useful model system for studying the molecular mechanisms of asymmetric cell division. In this minireview, we focus on recent progress in understanding the role of heterotrimeric G proteins and their regulators in asymmetric spindle geometry, as well as the role of an Inscuteable-independent microtubule pathway in asymmetric localization of proteins in neuroblasts. We also discuss issues of progenitor proliferation and differentiation associated with asymmetric cell division and their broader implications for stem cell biology.